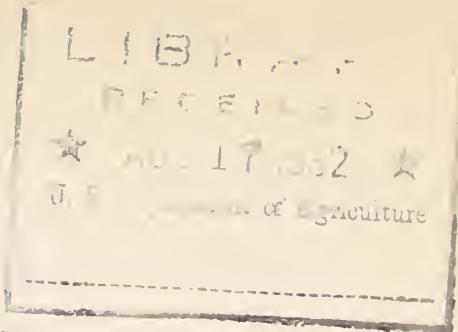


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H-75-Pa



PUTTING DOWN IN BRINE  
By the U. S. Department of Agriculture

There are more home gardens this summer, it is reported, than this country has seen in years, and the yield is good. There is occasion, then, not only for canning and drying vegetables for winter use, but also for reviving that other old-time practice of "putting down in brine." Some of the non-acid vegetables may well be preserved by brining, which yields a product that is "different," and appetizing in its own distinctive way. Sauerkraut and onion pickle, for example.

Green peppers, green tomatoes, cucumbers, cauliflower, and snap beans are successfully put away in brine, to make "salt stock" for pickling later on, or, in the case of the peppers and the green tomatoes, to be cooked (after freshening) for table use. The brined peppers are excellent when stuffed, and the green tomatoes can be made into pie or they can be fried and served as a vegetable.

When vegetables are put in brine the juices they contain and their soluble substances, such as sugar, are drawn. In some vegetables, like cucumbers and cabbage, where the supply of sugar is ample and other conditions are favorable to the growth of the lactic acid bacteria, fermentation occurs and an acid brine is formed.

Equipment

Stone jars, water-tight kegs, or barrels, or, for small quantities, wide-mouth bottles or glass jars are the best containers for vegetables in brine. Boards an inch thick (not yellow or pitch pine) make the best covers for large containers, and they may be weighted down with almost any heavy object except limestone. For small containers, heavy plates will serve as covers.

Fine table salt is not necessary. In fact, salt to which anything has been

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added to prevent caking is undesirable. Common fine salt--or even coarser grades--may be used, after crushing the lumps or cakes.

#### Methods of Preserving with Salt

Brining may be done to produce either a fermented or an unfermented product, and this is accomplished either by using a salt solution or by adding dry salt to the vegetable. Which procedure is to be followed depends upon the vegetable and the ease with which it gives up the water it contains. For whole vegetables, such as cucumbers, some brine is usually added. Any vegetable, however, when sliced, chopped, or shredded, gives up the water readily and may be dry salted. In either case the important factor is the proportion of salt to the quantity of water in the added brine or in the vegetable itself. (For full details see Farmers' Bulletin 1438-F, "Making Fermented Pickles," which can be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., for 5 cents a copy).

Fermentation is produced by weak brines. For sauerkraut (which is fermented)  $2\frac{1}{2}$  per cent of its weight in salt is added to the freshly shredded cabbage (4 ounces of salt to 10 pounds of cabbage).

The quantity of brine necessary to cover vegetables is about half the volume of the material to be fermented. For example, if a 5-gallon keg is to be packed,  $2\frac{1}{2}$  gallons of brine is required. Thus for dilled cucumbers (a familiar example of fermented pickles where a brine is added) a 5 per cent brine, is used (1 pound of salt to 2 gallons of water).

For most vegetables less fermentation is desired, therefore a stronger brine is used.

For snap beans, green tomatoes, mango melons, or burr gherkins, make a brine of 1 pound of salt to 9 pints of water. (A fresh egg will just float in brine of this strength).

3. *Is it possible to have a more detailed description of the data?*

Journal of the American Statistical Association, 1980, Vol. 75, No. 369, pp. 33-43

For green peppers and cauliflower, use a stronger brine--a little more than a pound of salt to 6 pints of water. Some fermentation takes place at this strength.

Onions need a still stronger brine--1 pound of salt to 4 pints of water. At this strength all fermentation stops.

The brine must be kept at its original strength by the gradual addition of salt to offset the dilution caused by the water content of the vegetables. This will require, for cucumbers and for most of the other vegetables suitable for brining, the addition, after about 24 hours, of about 1 pound of salt for every 10 pounds of vegetables, and 1/4 pound of salt each week thereafter until the material is cured. The surface of the brine must be kept free from scum.

Temperature is an important factor in the fermentation of foods in brine. The bacteria that cause fermentation are most active at a temperature about 86° F. The foods to be fermented should therefore be kept as closely as possible to 86° F. until the active stages of fermentation have passed, which should be within 10 to 15 days. Then the food should be stored in a cool place.

#### Dilled Cucumbers

30 to 35 large cucumbers  
1 pint vinegar  
1 pound salt

2 gallons water  
2 ounces mixed pickle spices  
Fresh or dried dill

Cucumbers should be fresh picked, uniform size, free from blemish. Wash well, and drain. Into a four or five gallon jar place a layer of dill and spice. Fill the jar with the cucumbers to within 4 or 5 inches of the top. Prepare the ingredients and pour the mixture over the cucumbers. Cover with a heavy plate and weight it down to hold the cucumbers under the brine. The brine should barely cover the pickle, for as the liquid is drawn from the



cucumbers it will be very likely to run over the sides if too full at first. The scum which forms over the cucumbers should be removed each day. Keep at an even temperature ( $86^{\circ}$  F.) and in two weeks the cucumbers will be ready to use. They should be of pleasing dill flavor, clear throughout with no white spots when cut, and crisp.

To protect the dilled cucumbers from spoilage, cover the surface of the brine with paraffin, and store in a cool place; or transfer the cucumbers to smaller containers, add some of the brine heated to boiling temperature, then cover with paraffin and seal.

Green Tomatoes can be dilled in the same way, with 2 tablespoons sugar added to each gallon of brine, to facilitate formation of acid.

Brined Green Tomatoes - The tomatoes should be firm and of uniform size. Prepare by washing thoroughly, and placing them in a large stone jar. Prepare a brine with a pound of salt to 9 pints of water and pour this over the tomatoes. Weight it down and keep the tomatoes well under the brine. The brine must be tested each day (the egg test will do), and kept at the proper strength, otherwise the tomatoes will become soft. The scum must also be removed each day. When the curing is complete, protect from spoilage as for cucumbers.

Salted Peppers, Onions, or Cauliflower - Wash and weigh the vegetables. Mix with them thoroughly one-fourth their weight of salt. If under pressure there is not enough brine produced to cover the product add brine by dissolving 1 pound of salt in 2 quarts of water. As soon as bubbling ceases protect the surface by covering with paraffin. Keep in a cool place.

Corn also can be preserved in this way. Husk the corn and remove the silk. Cook it in boiling water for 10 minutes, to set the milk. Then cut the corn from the cob with a sharp knife, weigh it, and pack it thoroughly mixed with one-fourth its weight of fine salt.

